

**A NEW SUBSPECIES OF *DELIAS RILEYI* JOICEY & TALBOT
(LEPIDOPTERA: PIERIDAE) FROM WEST PAPUA, INDONESIA**

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Abstract

Delias rileyi erici subsp. n. is described and figured from the Korupun area, West Papua, Indonesia. A key to all known subspecies of *Delias rileyi* Joicey & Talbot is provided.

Introduction

Delias rileyi Joicey & Talbot was described from a single male from Menoo Valley (Weyland Mountains), West Papua (Joicey and Talbot 1922) but was not listed by either Roepke (1955) or D'Abbrera (1972, 1977, 1990). Subsequently, *D. rileyi yofona* Schröder & Treadaway has been recorded from Wissel Lake (Schröder and Treadaway 1982), Tembagapura and Paniai (van Mastrigt and Sibatani 1991). Van Mastrigt and Sibatani (1991) extended the known distribution of the species as far east as longitude 138°E, including *D. rileyi nishizawai* van Mastrigt & Sibatani from Ilaga and Ilu-Mulia. Since then, the species has been obtained from much farther east at Korupun, ca 140°E. Specimens from Korupun have previously been included with *D. r. yofona*, which is the nearest population to the west. However the differences between the two populations are quite marked and they are well separated geographically. On the strength of these differences and the isolation of the two populations, a new subspecies is proposed for specimens from Korupun.

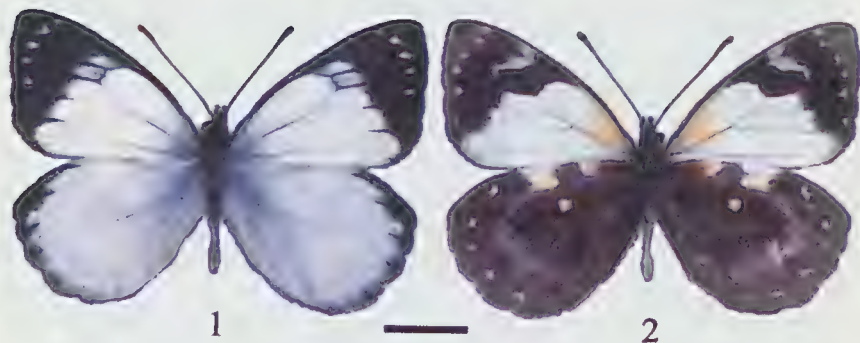
Depositories are abbreviated as follows: AMS - Australian Museum, Sydney, RG - R. Gotts collection, GG - G. Gerrits collection.

***Delias rileyi erici* subsp. n.**

(Figs 1-2)

Types. Holotype ♂, INDONESIA (WEST PAPUA): Asso River, Korupun, 20.xi.1995 (in AMS). *Paratypes:* 5 ♂♂, same data as holotype except 18, 23, 25.ix.1995 (in RG).

Description. Male (Figs 1-2). Forewing length 25-29 mm. Forewing upperside white with black costa and apex, the latter enclosing a subapical arc of five clearly defined white spots; apical black area not reaching discocellulars; discocellulars and proximal parts of spaces M₂ and M₃ black, enclosing two grey cells in spaces M₁ and M₂. Forewing underside white with dark brown apical area filling distal 40% of wing from an irregular line extending from costa to tornus and just including the discocellulars; two pale yellow subapical spots followed by four smaller white sub-terminal spots, the last rather faint; apex and termen lighter brown beyond these spots; a narrow, irregular white postmedian band, usually of three conjoined spots, not quite connecting to discal white area; basal and anterior part of cell yellow.



Figs 1-2. *Delias rileyi erici* subsp. n., holotype male. (1) upperside; (2) underside. Scale bar = 10 mm

Hindwing upperside white with continuous black terminal margin thickening at vein ends and towards apex. Underside dark brown with terminal white lunules edging the scallops between the veins and a sub-terminal yellow spot in each space; a thin yellow central streak in each discal space and a yellow spot in the cell; mid-costa with a trapezoidal white patch 4-5 mm long becoming yellow posteriorly before terminating at M_2 . A second smaller sub-costal pale yellow spot midway between base and larger sub-costal patch.

Female. Not recorded. The female of *D. r. yofona* was illustrated by Gotts and Pangemanan (2001) and Yagashita *et al.* (1993) depicted the female of *D. r. nishizawai*.

Etymology. *D. r. erici* is named for Eric Gotts, a grandson.

Comments. The four subspecies of *D. rileyi* may be divided into two groups by the extent of the dark apical area on the forewing upperside. In *D. r. yofona* there is, on the forewing underside, a distinct gap between the apical black margin and the bold discocellular bar. In *D. r. erici*, as in the other two subspecies, there is no such gap.

Diagnosis is also based on the series of five well defined subapical white spots on the upperside of the forewing in *D. r. erici* (reduced or absent in all other subspecies) and on the characteristics of the dark margin on the hindwing upperside, which in *D. r. erici* is intermediate between the bold margin of *D. r. nishizawai* and the thin margins of the other two subspecies.

Discussion

Delias rileyi is a montane species found at altitudes above 1450 m (Mastrigt and Sibatani 1991). Its various populations are geographically isolated by

broad river valleys and lowlands that separate the main mountain chains of the region.

In all four subspecies the hindwing underside pattern is very similar, although the orange-yellow central spot on the hindwing underside is slightly larger in *D. r. erici* than in the others. Diagnosis is made mainly on the basis of the upper and underside of the forewings and the upperside of the hind wings. *D. r. yofona* is the geographically nearest subspecies to *D. r. erici* but differs by the thinner and more reduced hindwing upperside black margin. The gap between the discocellular bar and the apical black area of the forewing underside is usually reliable as a first identifier for *D. r. yofona*.

D. r. nishizawai is readily separated by its bold hindwing upperside margin and by yellow filling most of the cell of the forewing underside. The short band between the discocellular bar and the apical brown area is partly yellow, not white.

On the upperside forewing *D. r. rileyi* and *D. r. nishizawai* have the apical black area reaching the discocellulars but the latter has a boldly black hindwing margin, tapering smoothly towards the tornus, while *D. r. rileyi* and *D. r. yofona* both have minimal black hindwing margins, fairly bold at the apex but broken or absent or extremely thin in the lower parts of the hindwing margin.

Only *D. r. erici* has the five white spots of the forewing upperside apical area clearly defined. *D. r. rileyi* and *D. r. yofona* have two to four faintly visible spots and occasionally a trace of a fifth, while *D. r. nishizawai* may have two very faint spots or none at all. Similarly, in *D. r. erici* the yellow submarginal spots of the hindwing underside are also better defined, being more rounded and set on a darker ground colour than in the other subspecies.

Odd specimens from other areas suggest that other presently unnamed subspecies of this species may exist. Two males from Wesi River, Baliem Valley (GG) are very similar to *D. r. erici* but the subapical spots of the forewing upperside are not well defined and are closer in appearance to those of *D. r. yofona*. The hindwing upperside markings are also less bold than those of *D. r. erici* but bolder than in *D. r. yofona*. Since Korupun is situated in the catchment basin of a different river system, there is a case to be made for separating the Baliem population as a further subspecies, but the differences and the number of specimens are small and no firm decision can be made at this time. Pending further study they are grouped with the Korupun subspecies, since to include them with *D. r. yofona* would be to distort the range of variation and the geographic distribution of that group. A specimen of *D. r. rileyi* from Ilaga agrees in most respects with *D. r. nishizawai* but lacks the extended yellow area in the cell of the underside forewing. The localities of these specimens do not place them as intermediary forms between the described subspecies.

Other material examined. INDONESIA (WEST PAPUA): 5 ♂♂, 2 ♀♀, Tembagapura (RG); 2 ♂♂, Magoda, Weyland Mts. (RG); 3 ♂♂, Mulia (RG); 2 ♂♂, Baliem Valley, (GG); 1 ♂, Ilaga (RG).

Key to subspecies of *Delias rileyi*

- 1 Forewing upperside black outer margin extends to discocellular veins ... 2
 - Forewing upperside black outer margin does not reach discocellular veins 3
- 2 Forewing underside discal cell with only basal third yellow ... *D.r. rileyi*
 - Forewing underside discal cell almost filled with yellow *D.r. nishizawai*
- 3 Forewing upperside with the five white subapical spots reduced or absent; forewing underside with the black discocellular bar not joined to outer apical black area; hindwing upperside with the dark margin narrow and not always reaching tornus *D.r. yofona*
 - Forewing upperside with five well defined white subapical spots; forewing underside with the black discocellular bar touching or broadly joined to the outer apical black area; hindwing upperside with the dark margin bold and heavily beaded at apices of veins *D.r. erici*

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References

- D'ABRERA, B. 1972. *Butterflies of the Australian Region*, 1st ed. Lansdowne Press, Melbourne; 415 pp.
- D'ABRERA, B. 1977. *Butterflies of the Australian Region*, 2nd ed. Lansdowne Editions, Melbourne; 415 pp.
- D'ABRERA, B. 1990. *Butterflies of the Australian Region*, 3rd, revised edition. Hill House, Melbourne and London; 416 pp.
- GOTTS, R. and PANGEMANAN, N. 2001. *Mimika butterflies*, Quality Press, Osborne Park, Western Australia; 287 pp.
- JOICEY, J.J. and TALBOT, G. 1922. New forms of the genus *Delias* (Pieridae) from New Guinea, Ceram and Buru. *Bulletin of the Hill Museum* 1(2): 303-319.
- ROEPKE, W. 1955. The butterflies of the genus *Delias* Hübner (Lepidoptera) in Netherlands New Guinea. *Nova Guinea* 6: 185-260.
- SCHRÖDER, H. and TREADAWAY, C.G. 1982. Neue *Delias*-Formen aus West-Irian, Neuguinea (Lep.: Pieridae). *Entomologische Zeitschrift (Frankfurt am Main)* 92(23): 334-338.
- VAN MASTRIGT H. and SIBATANI, A. 1991. A study of *Delias rileyi* from Irian Jaya, Indonesia. *Entomologische Berichten (Amsterdam)* 51(1): 2-6.
- YAGASHITA, A., NAKANO, S. and MORITA, S. 1993. *An illustrated list of the genus Delias Hübner of the World*. Khepera Publishers, Tokyo; 409 + vi pp.